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EFFECTIVENESS OF FINANCIAL DERIVATIVES AS A RISK DIVERSIFICATION AND PROFIT MAXIMIZATION TOOL"– THE CASE OF HEDGE EQUITIES LTD

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1.1 Introduction

Derivative contract is a contract whose value is determined by the changes in the value of underlying asset. Underlying assets include stocks, bonds, commodities, currencies, interest rates and market indices. Hedgers are the investors who use derivatives as a hedging tool to reduce their future risk. Hedge is an investment made in order to reduce the risk of adverse price movements in a security by taking an offsetting position in a related security.

In this paper, we use derivative futures and options to diversify the risk and maximize the profit from the investment. A future is defined as a standardized contract to buy or sell a specified commodity of standardized quality at a certain date in future and at a determined future price. The party agreeing to buy the underlying asset in future is said to have taken a long position and the party who agrees to.

1.2 Introduction to the Industry

Financial services

Financial services are the economic services provided by the finance industry, which encompasses a broad range of organizations that manage money, including credit unions, banks, credit card companies, insurance companies, consumer finance companies, stock brokerages, investment funds and some government sponsored enterprises.

The Indian financial services industry is characterized by increasingly vibrant public- and private-sector institutions. As the common Indian acronym BFSI, which stands for "banking and financial services industry," indicates, the banking sector has historically dominated the industry. But other sectors have made significant gains as well. Though the industry continues to be dominated by public-sector institutions, particularly in insurance and asset management, there is a growing list of private enterprises, competing fiercely both among themselves and with the public entities.

1.3 Introduction to the Company

Hedge Equities Ltd

Hedge equities ltd. is one of the leading retail stock broking house which is running successfully in the country. Hedge offers its customers a wide range of equity related services including trade execution on BSE , NSE , Derivatives , Depository services , online trading , investment advice etc.. to superior content and transaction facility to retail customers across the country.

1.4. Research Methodology

A) Objective of the Study

For the effectiveness of the study the objectives are:

Primary Objective

1. To analyse and determine the effectiveness of Financial Derivatives as a risk diversification and profit maximization tool.

Secondary Objectives

1. To study about the impact of hedging in the derivative market.
2. To construct an optimal portfolio to test the diversification strategy.
3. To study how to use derivatives, especially futures and options in volatile markets to make profits maximization and risk reduction.

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B) **Methodology and Sample Design**

Research Problem

Stock market is an investment avenue where the returns can be maximum and within no time. However, the market is volatile and the investment involves high risk. Investors always expect the market to be bullish and give them maximum possible returns. For that the risk diversification must be done. Hedging is a popular method used by investors to reduce the risk and maximize the profit from such investments. This research analyses whether hedging with financial derivatives such as futures and options is effective in risk management.

Methodology of Data Collection

The data are collected in the form of secondary data. It is taken from published reports, annual company reports, and library books and from the websites of NSE and various other websites. The data used for the study and historical or secondary nature. The companies are selected according to their beta value and market capitalization.

Area of Study – Index Futures and Options

Fluctuations in the market indices affect the investors' investments in the stock market. Stocks with high beta value have a positive change in response to the market indices. Derivatives help to reduce to the risk of losing value due to the volatility of the market. Index futures and index options were the first derivatives to be introduced in India. These are basically derivative tools based on stock index. They are considered to be the real risk management tools. Since the derivatives are permitted legally, one can use them to insulate its portfolio against the vagaries of the market.

Sample Design / Portfolio Build up

For the purpose of the study a portfolio has been built with 10 companies from 5 different industries based on high beta value and market capitalization.

The companies and the industries are:

Industry Name	Company Name	Beta Value	Market Cap in million
Steel	TATA STEEL LTD.	2.04	290,150.59
	JINDAL STEEL & POWER LTD	1.5	266,240.69
Banking	ICICI Bank Ltd	1.67	1,313,518.00
	HDFC Bank Ltd	1.02	1,627,000.00
Telecom	Idea Cellular LTD	1.08	449,054.41
	Reliance Communications Ltd	1.85	227,662.20
Power	Adani Power Ltd	1.2	161,258.41
	Reliance Power Ltd	1.61	194,535.50
Engineering	Larsen & Toubro Ltd	1.55	868,572.69
	Bharath Heavy Electricals Ltd	1.34	478,138.69

C) **Sampling Plan**

The data used is secondary data from the Indian stock market. Data is collected from March 1st 2013 to May 30th 2013. The historical data regarding the stock market index S&P Nifty, the futures index FUTIDX NIFTY and OPTIDX Nifty are considered.

D) **Research Design**

The research is conducted at Hedge Equities, Cochin. The type of research used is descriptive research.

E) **Period of Study**

The period of study is from May 2nd 2013 to June 15th 2013, with duration of 45 days.

F) **Sources of Data Collection**

The nature of data used is historical data. The information is collected from various textbooks, websites and company data.

G) Statistical Tools Used for Analysis

H) <u>Beta Value Analysis</u>

Beta is the slope of the characteristic regression line. The beta value describes the relationship between the stock's return and the index returns.

- **Beta = +1**
  One percent change in market index return causes exactly one percent change in the stock return indicates that the stock moves in tandem with market.
- **Beta = +0.5**
  One percent changes in market index return causes 0.5 percent change in the stock return. The stock is less volatile compared to the market.
- **Beta = +2**
  One percent change in market index return causes 2 percent change in the stock return. The stock return is more volatile. When there is a decline in the market return, the stock with beta of 2 would give a negative return of 20 percent. The stocks with more than 1 beta value are considered to be risky.
- Negative Beta value indicates that the stock return moves in the opposite direction to the market return. A stock with a negative beta of -1 would provide a return of 10 percent, if the market return declines by 10 percent and vice versa. Stocks with negative returns are very rare.

Recipe for calculation of beta value:

$$= \frac{n \quad XY - (\quad x) \quad y)}{N \quad x^2 - (\quad x) 2}$$

Where

X → Index Return
Y → Stock Return
X → Sum of Index return
Y → Sum of stock return
N → No. of days

The beta is calculated in excel sheet by using data on month of April of the particular stock & Index market.

1) **<u>Weightage of Share</u>**

$$\textbf{Weightage of share} = \frac{\text{No of shares X share price}}{\text{Total amount of the portfolio}}$$

2) **Hedge Ratio**

$$\textbf{Hedge Ratio} = \frac{\text{Value of the portfolio X Beta of the portfolio}}{\text{Nifty Index value}}$$

1.5 Scope of the Study

1. The study is attempted to assess the power of hedging technique using index futures and options
2. This study aims at providing an insight into the operations of hedging strategies. Hedging provides security to the investment and also reduces the level of risk borne by the investors.
3. The study describes the strategies to select the right hedging techniques based on the requirements of the investors.

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1.6 Limitations of the Study

1. The study is focused on the risk diversification using Nifty Index futures and options only.
2. This study covers the Indian scenario of hedging in derivatives only.
3. The market is always volatile, so the prediction or anticipation that can be used depends upon each individual investor.
4. The study is based on the past performance of the stock market, which cannot guarantee future performance.
5. Basic analysis of the economy, industry and the companies included in the portfolio.
6. Profit or loss analysis of the portfolio without the use of derivatives.
7. Profit or loss analysis of the portfolio with the use of derivatives.
8. Effectiveness of hedging in the reduction of risk and profit maximization.

2.Data Analysis and Discussions

From the analysis we have given the weightage to the shares as follows:

Weightage of the Shares in the Portfolio

Weightage of the shares in the portfolio

Industry Name	Company Name	Weightage
Steel	TATA STEEL LTD.	0.1014552
	JINDAL STEEL & POWER LTD	0.09868375
Banking	ICICI Bank Ltd	0.10035325
	HDFC Bank Ltd	0.099448
Telecom	Idea Cellular LTD	0.1000482
	Reliance Communications Ltd	0.09993465
Power	Adani Power Ltd	0.1000524
	Reliance Power Ltd	0.0999664
Engineering	Larsen & Toubro Ltd	0.0994071
	Bharath Heavy Electricals Ltd	0.1006509

The beta values of the shares are calculated and the beta of the portfolio is found.

TABLE 3.2 *beta values of shares*

3. Empirical Results

Findings from the Study

a) Effectiveness of Financial Derivatives as A Risk Diversification Tool

1. Financial Derivatives such as futures and options can be used as an effective tool to diversify the risks associated in investing in a volatile stock market.
2. To diversify the risk a proper portfolio must be prepared by analyzing the market condition.
3. The risk can be reduced to an extent only, it cannot be avoided.
4. Risk is associated in any type of investment; financial derivatives can be used to hedge the risk.
5. The effectiveness of risk diversification depends upon the type of tool used that is futures or options.
6. The selection of the tool entirely depends upon the anticipation of the investor, so that an experienced investor can make huge profits in comparison to a newcomer.
7. Strategies can be varying according to the time period. The selection of the tool and the strategy that should be adopted varies with time to time.
8. 100% protection from risk is not possible; however the risk can be reduced.

b) Effectiveness of Financial Derivatives as a Profit Maximization Tool

1. By using futures and options the profit from the portfolio can be maximized.
2. If the portfolio incurs a loss, by using index futures or options the loss can be minimized. Thereby the net effect of the loss is reduced.
3. If the portfolio makes a profit, the trading of futures and options add extra profit to the investment.

4. An investor might need the advice of a portfolio manager to prepare a portfolio which delivers maximum profit.
5. An aggressive portfolio delivers maximum profit as it changes with the market index.

4. Suggestions

On the basis of analysis done and findings reached, the following suggestions are given to existing and prospective customers.

1. The losses that arise from the market risk can be reduced effectively using hedging. The minimization of the risk is its primary objective.
2. Awareness programmes must be introduced by the brokers or financial institutions about the importance of using financial derivatives as hedging tools.
3. If an investor wants to minimize the risk of the portfolio, it must consists of shares from various sectors and here Nifty index futures are used as a tool for hedging, since they are convenient and represent the security market as a whole. The advantage is that the risk within the portfolio can be minimized completely and the portfolio will only be affected by the market risk.
4. Strategic thinking and positive thinking are the two qualities that are needed for a Hedger. These qualities will enable him to comprehend market trends and fluctuations. If he lacks these qualities the strategies adopted by him will earn only losses.
5. The selection of the hedging tool depends on the time frame and the nature of the investor. An investor who prefers short term investments can go for hedging, and the tools must be specifically adopted by him, depending on the risk he is willing to suffer and the amount of liquid cash he has. Since the market is always volatile long term investor should always be careful.
6. The level to which the risk is to be reduced must be determined by the investor before he selects a risk reduction strategy. The cost and the benefit of each strategy must be considered with the existing market situations.
7. The strategies must be changed according to the market situations rather than sticking to a particular strategy.

5. Summary and Conclusion

The paper titled "A Study on the effectiveness of Financial Derivatives as a Risk Diversification and Profit Maximization Tool"– The case of Hedge equities Ltd, for a period of 45 days from May 2nd 2013 to June 15th 2013.Investments in the stock market involve high risk due to the volatile market conditions. We use derivatives such as futures and options to hedge the risk associated with such investments.

It is realized that derivative instrument have been in the market right from the 13th century onwards. But derivative has come to the notice of modern security market only in recent years. Therefore not much people are aware of its usage as hedging tool.

This project is focused on the effectiveness of hedging in portfolio management. The project is prepared using real market data and arrives at a conclusion based on the results that are calculated minimizing any discrepancies.
A portfolio construction is an important step for every investor. It should be made sure that the portfolio is a diversified one with different set of sectors included in it. It can greatly reduce the risk of heavy loss due to the problems in any one sector. Futures and options are two of the major hedging tools that can make unlimited profits and limited loss within a short time frame. Options provide us with a set of different strategies on the basis of the investor's risk profile which can be applied accordingly. The greatest benefit on using futures is that the investor has to pay a particular amount of premium to buy option contracts. On the other hand, we have futures as another hedging tool which is commonly used. But in order to apply futures, the investor has to keep a particular percentage as margin. If the hedging tool acts in the inverse direction, making losses, amount from our margin will be deteriorating slowly. But the percentage of profits future contracts makes is very much high.

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Thus, here by we can conclude that, a systematic investment with proper hedging along with in can earn us extra profits than the normal portfolio return. Also a diversified portfolio is a kind of hedging technique that reduces heavy loss in the portfolio. Thus we can reduce the risk and maximize the profit of a portfolio.

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